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# PREFACE



The third symposium on Theoretical Aspects of Computer Software (TACS '97) was held in Sendai, Japan, on September 23–26, 1997. The program co-chairs were Martín Abadi and Takayasu Ito. The conference proceedings appeared as Lecture Notes in Computer Science, Vol. 1281 (Springer-Verlag, Berlin/New York, 1997). The program committee received 46 papers and accepted 20. After the symposium, expanded versions of seven papers were solicited for this special issue of *Information and Computation*. After a standard journal refereeing process, five were accepted, spanning a broad range of topics.

The issue opens with an article by Birkedal and Harper entitled "Relational Interpretations of Recursive Types in an Operational Setting," based on Harper's invited lecture at the symposium. This article's contribution falls into one of the most active areas of recent research in programming language semantics: the development of purely operational analogues for powerful tools from the setting of denotational semantics. Here, the goal is to construct interpretations of type systems involving recursive types as families of relations, thus making possible a variety of proof techniques based on logical relations.

Ohori's article, "Type-Directed Specialization of Polymorphism," was also presented as an invited lecture. It develops a general framework for specializing polymorphic operations into efficient low-level code, generalizing two specific specialization techniques already studied in the literature.

"Comparing Object Encodings," by Bruce, Cardelli, and Pierce, is a generalization exercise in a different domain. It shows how four previously studied foundational models for object-oriented programming in typed lambda-calculi can be viewed as variants of a common schema. The common presentation allows comparison of these models along several dimensions.[1]

"Semi-explicit First-class Polymorphism for ML," by Garrigue and Rémy, proposes a powerful technique for embedding impredicative polymorphic functions in languages with Damas–Milner type inference. Their technique is conservative, in the sense that the type-checker is able to infer typings automatically for all ML-typeable terms, and provides convenient access to more powerful "higher-order" polymorphism with a minimum of extra annotations.

The final article, Bonsangue and Kok's "Toward an Infinitary Logic of Domains: Abramsky Logic for Transition Systems," extends Abramsky's finitary domain logic for transition systems to the infinitary case, using a new characterization of sober spaces in terms of their completely distributed lattice of saturated sets.

[1] Since one of the special issue editors was also a co-author of this article, its reviewing was handled solely by Takayasu Ito.



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We are grateful to those who collaborated in the making of this special issue, with special thanks to the reviewers. Their efforts, though anonymous, are far from invisible!

Takayasu Ito
Benjamin C. Pierce
*Special Issue Editors*